C5800-3.1(u)(a)

Economics Department

McGraw-Hill Publications Company
1221 Avenue of the Americas
New York, New York 10020

November, 1982

29th ANNUAL McGRAW-HILL FALL SURVEY OF PRELIMINARY PLANS FOR NEW PLANTS AND EQUIPMENT, 1982-84

It looks like a rough year ahead for capital spending.

The bad news is that business plans to decrease capital investment in the U.S. by 2.1% next year to $316.85 billion (Table I). The further bad news is that survey respondents expect capital goods prices to rise 7% (Table II) in 1983.

If both the spending and price projections prove correct, it would mean a sharp 8.5% drop in real (inflation-adjusted) capital expenditures in 1983.

These are the key findings of McGraw-Hill's 29th annual fall survey of companies' plans to buy new plant and equipment. The survey was conducted in September and October, and drew responses from 450 companies that do about one-third of all capital spending in the U.S. (Table VIII). Dollar figures in this report, however, are "blown up" to represent all companies in the economy.

Beyond 1983, the survey results are also less than uplifting. In 1984, new plant and equipment expenditures are projected to rise 7% from 1983. Even if inflation slows down, therefore, real expenditures in 1984 would rise modestly at best. In short, the survey says that capital spending will be weak for at least two more years.

If there is a glimmer of good news in the survey it is in companies' expectations for the economy as a whole, for their own sales

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in particular, and for inflation. Most respondents think the economy will grow 2.5% to 3.9% next year (Table V), compared to a fall in 1982 of about 1.5%. Most respondents also think their own sales will snap back sharply in 1983 (Table III). After taking out inflation, manufacturers as a whole expect sales to surge by 7% (Table IV).

Respondents also expect to raise their product prices next year by 6.1% on average. That's the survey's lowest inflation projection since the fall of 1978, when the price increase was put at 5% for 1979.

Things Couldn't Be Much Worse...

If, as the survey indicates, inflation-adjusted capital spending drops in 1983, it would mark the first time in America's post-World War II history that real expenditures fell two years back-to-back. Moreover, although investment has collapsed more severely in other single years (1958 and 1975), the projected 1981-83 drop would be the worst two-year performance since World War II. (See Chart I.)

The 8.5% planned cutback in real capital spending is also much worse than anticipated by most forecasters, who had been looking for a 2%-3% dip in 1983.

How can things be so bad? Aren't interest rates falling fast? And even with the hike in business taxes last August, hasn't the Reagan Administration been successful in raising incentives to invest through the Economic Recovery Tax Act of 1981?

In part, the interest rate decline occurred while the survey was in progress, and lower interest rates may not be reflected in spending plans of survey participants. At the same time, the 1982 tax hike may not be factored into 1983 plans either, since that bill was passed in August just before the survey began.

Chart I. The Current Capital Spending Slump Could Set a Record

	Plant & Equipment Expenditures	
	Billions of 1972 $	Real % Change
1949	43.92	-10.3
1950	45.63	3.9
1948-50		[-6.8]
1954	53.21	-1.4
1955	57.46	8.0
1953-55		6.5
1958	59.25	-12.5
1959	61.34	3.5
1957-59		[-9.4]
1961	65.85	-1.3
1962	70.05	6.4
1960-62		5.0
1967	104.37	-1.4
1968	106.27	1.8
1966-68		0.4
1971	112.49	-2.4
1972	119.93	6.6
1970-72		4.0
1975	119.66	-11.5
1976	123.11	2.9
1974-76		[-8.9]
1981	159.44	0.2
1982	152.27	-4.5
1983	139.17[e]	-8.6[e]
1981-83		[-12.5]

NOTE: Brackets highlight two-year periods in which real capital spending declined.

[e]Estimate from survey.

Passing over these uncertainties, the fundamentals that drive capital spending are uniformly weak. In the manufacturing sector, the factory operating rate is at its lowest point since McGraw-Hill began keeping track in 1964. And manufacturers' shipments and new orders this year are trailing well behind the lackluster pace of 1981.

With spare capacity plentiful and with little prospect that sales will spurt in the near future it's logical that manufacturers have decided to pare back purchases of new plant and equipment.

In nonmanufacturing the picture is similarly dark. Mines, electric utilities, and airlines, for example, need big boosts in demand before they can use their capacity efficiently. Retail firms, suffering from sluggish consumer spending and nearly nonexistent new housing construction, do not want to expand their outlets until demand increases and new residential development picks up. Also trying to grapple with the shrunken housing market, of course, are construction companies who now face fading prospects in nonresidential building. Thus they too are cutting way back on equipment purchases.

Most firms, moreover, whether manufacturers or nonmanufacturers, have been going through a trial by financial fire. Balance sheets are so badly skewed toward short-term debt and companies are so seriously subject to liquidity crises that corporate executives may have deemed 1983 the year to save every penny possible to restore fiscal health. Corporate management may be reasoning that such saving could come heavily from capital budgets--since no new capacity will be needed next year, why not just put all new projects on hold?

As a further disincentive to invest, interest rates are still high, especially in real terms. With a prime rate around 12% and the expected

inflation rate at about 6% (Table II) the real interest rate is 6%--double the historical norm. The yield on high-grade corporate bonds is also around 12%. And amidst all the headlines about plummeting interest rates the fact that bond rates haven't fallen nearly as much as short-term rates has perhaps been obscured.

In sum, capital spending should be weak next year because companies' sales have been weak. That has left them with little financial ability to buy new plant and equipment. And it has left them with lots of poorly utilized plant and equipment that could quickly be put to use to meet the expected sales increase in 1983. Moreover, despite the brouhaha over falling interest rates and easier monetary policy, rates remain unacceptably high.

So the survey surely seems correct in projecting a real decline in capital investment next year. The question is whether that projection is excessivly pessimistic.

...But the Survey May be Overreacting

By no means can the survey results be considered anything other than gloomy. But the gloom can be dispelled at least a little bit by digging into the archives and seeing how the survey behaved in past recessions.

Chart II shows pairs of years in which capital investment was very weak the first year and strong in the second. The first year shown is one in which a recession ended or one immediately following the end of a recession. The purpose of the chart is to show that when the survey is conducted in a year of weak capital spending, the survey's

Chart II. The Survey Undershoots in Recovery Years

	Percent Change			Actual Investment Minus Survey Projection--Percentage Points
	Real Economic Growth	Capital Investment	Survey Projection of Capital Investment	
1954	-1.2	-1.3	-7.9	
1955	6.7	10.4	-4.9	15.3
1958	-0.4	-12.4	-7.0	
1959	6.0	6.2	0.5	5.7
1961	2.6	-1.7	-3.0	
1962	5.8	7.2	4.0	3.2
1971	3.4	2.8	2.4	
1972	5.7	10.8	6.9	3.9
1975	-1.1	0.5	12.0	
1976	5.4	8.7	8.8	-0.1

NOTE: Figures in the third column are from McGraw-Hill fall capital spending surveys conducted the year prior to the years shown. For example, the -7.9% projection for 1954 comes from a survey published in the fall of 1953. The percent changes in capital investment are in nominal terms, so they are not comparable with the figures in Chart I.

spending projection for the following year tends to be too feeble. That undershooting is quantified in the fourth column.

This year, plant and equipment spending will be up only marginally at best (and down 4%-5% in real terms). Thus it will be like the first years in Chart II. If 1983 marks a recovery, as many economists believe, then it will be something like the second years in the charts. Hence the survey's history suggests that the 1983 projection of -2.1% could be too negative by several percentage points.

There are two major caveats to this conclusion, however. The first is that while 1983 may be a recovery year, hardly anyone thinks it will be a robust recovery. As noted earlier, most survey respondents think growth next year will be less than 4%, which compares to the

5.4%-6.7% rates in the expansionary years in Chart II. Without such rapid overall economic growth, capital investment would not be expected to rebound vigorously.

The second caveat is that the projection for 1976 was right on target. So maybe the survey's performance in turnaround years is getting more accurate.

But while in the 1950s capital goods inflation was negligible, in the 1960s and 1970s it grew mightily in importance; thus survey respondents' price expectations also became important in determining their intended real capital expenditures.

Chart III shows that when inflation is factored into the capital spending projections, the survey further undershot actual growth in expenditures in the selected recovery years. The conclusion here is that once the economy gains momentum, businesses crank up capital spending faster than they had earlier planned to. So the investment bust now in place for 1983 may not be as bad as the 8.5% drop reported by the survey.

Chart III. In Real Terms, the Survey Undershoots More

	--% Change, Real Capital Investment--		Actual Minus Survey
	Actual	Survey Projection	
1955	8.0	NA	NA
1959	3.5	NA	NA
1962	6.4	1.4	5.0
1972	6.6	1.8	4.8
1976	2.9	0.0	2.9

Nonetheless, given that the economy is not expected to grow rapidly for some time, a real decline in new plant and equipment expenditures is almost surely in the cards next year. And though the survey does not ask companies to report planned expenditures on a quarterly basis, any pickup in real 1983 investment would presumably come later in the year rather than earlier. If that is the case, a decline in real spending for 1983 as a whole implies further quarterly declines in at least the fourth quarter of 1982 and into 1983.

Almost All Industries Are Retrenching

The projected plunge in plant and equipment expenditures next year is not due to a debacle in any single industry. Weakness is widespread: Of the 24 industries in the survey, 14 plan to cut capital spending even before inflation is taken into account.

Perhaps the single biggest industry-specific factor contributing to the 1983 investment decline is the tumble in crude oil prices. Domestic prices are down about four dollars a barrel from their 1981 average, and that has crushed oil drillers' incentives to explore for and produce new crude. The cessation of drilling shows up not only in the petroleum industry's 8% cutback in planned expenditures, but also in the 13.5% drop in mining outlays. (Independent oil well developers are considered part of the mining industry; integrated oil company's drilling expenditures are [illegible] in the petroleum industry within manufacturing.) Thus the strongest element in investment growth from 1979 though 1981 has now become a powerful drag on business' overall capital expenditures.

More generally, nearly every industry is suffering from moribund markets and plummeting profits. For manufacturers these conditions are illustrated in Chart IV.

Chart IV. Sales Are Bad, Profits Are Worse

	Percent Change from Year Ago New Orders	Profits	Operating Rate
Iron & Steel	-36.8	*	46.1
Nonferrous Metals	-19.4	-93	65.6
Electrical Machinery	0.8	-17	72.0
Machinery	-15.9	-25	64.3
Autos, Trucks & Parts**	-5.4	15	61.6
Aerospace	2.0	-28	58.3
Fabricated Metals	-12.1	-38	59.6
Instruments	-1.8	-6	71.2
Stone, Clays & Glass	-10.9	-64	65.7
Other Durables	-10.2	-23	60.7
TOTAL DURABLES	-11.4	-36	62.1
	Sales		
Chemicals	-4.2	-18	67.0
Paper & Pulp	-1.2	-50	86.9
Rubber & Plastics	-8.1	-29	80.2
Petroleum	-8.5	-39	70.9
Food & Beverages	-0.2	-8	73.5
Textiles	-6.2	-64	76.2
Other Nondurables	2.5	-22	NA
TOTAL NONDURABLES	-3.1	-27	74.9
ALL MANUFACTURING	-5.6	-31	67.6

NOTE: New orders and sales percent changes are first eight months of 1982 versus first eight months of 1981. The profits column is percent change second quarter 1982 versus second quarter 1981 in net profit after taxes. Operating rates are as of September or August, depending on industry.

SOURCE: U.S. Census Bureau; McGraw-Hill Publications Co. Economics Department.

*Steel companies had a loss in the second quarter of 1982.

**Sales

Metals firms in particular are getting rough treatment from the recession. Iron and steel and nonferrous metals producers have seen one market after another decimated--autos, appliances, aircraft, machinery. And while nonresidential construction held up well earlier this year, it too has started to crumble; next year, moreover, nonresidential construction will almost certainly be down. The crack in construction may also help explain the sharp cutback in capital spending by fabricated metals firms, much of whose output is used in the building of new industrial plants, offices and other commercial structures, and electric power plants.

Construction companies will thus also be cutting back next year. It is their cutbacks plus cutbacks by transportation companies that account for the decline in projected spending by the "communications and other" category in Table I. Communications companies themselves expect to increase capital expenditures next year.

The airlines, as previously noted, have plenty of airplanes on hand and hence are grounding their spending plans in 1983. Gas utilities also expect to reduce expenditures sharply, probably due to delays in synfuels projects which in turn are due to the oil price drop. Electic utilities, too, plan to reduce spending.

On the up side, three industries stand out: electrical machinery (up 13.8%), instruments (up 15.4%), and rubber and plastics (up 14.4%).

In electrial machinery, part of the upsurge in spending is due to heavy outlays by producers of communications equipment, which includes satellite systems. High-tech, in other words, is probably behind the increase.

Instruments, too, includes high-technology companies that apparently have chosen to keep on investing even in the face of sluggish sales. Driving this industry's investment may be continued strength in hospital construction (hence demand for medical instruments) and industries' robust research and development programs that would require scientific instruments.

In the rubber and plastics industry, part of the planned pickup in spending next year could reflect deferred modernization and replacement spending in 1982. A big spending boost slated for 1982 kept getting put off and was finally pared way back.

As for 1984, almost all durable goods industries project double-digit percentage gains--probably reflecting a lot of catch-up spending deferred in 1983.

Plans for nondurable goods producers are much more subdued. A key figure here is the petroleum industry's plan to raise capital investment a mere 1.6% in 1984, suggesting that the dry spell in drilling will persist for some time. That conclusion is also supported by the mining industry's small projected spending increase of 2.7% in 1984.

Another interesting energy-related projection is the 6.9% drop in new plant and equipment purchases by the electric utility industry. If the plans for 1983 and 1984 materialize, it would mark two straight years of reduced spending. Once again, softening oil prices could be playing a key role--utilities may have decided that prices will stay soft so that conversion away from oil might not be as attractive as it once was.

Spending on Energy Conservation and Automation

In addition to cutting back on overall capital expenditures, business plans to cut even deeper into capital budgets for energy conservation and automation.

In 1982, companies intend to allocate 2.7% of their capital expenditures to energy efficiency (Table VI). That share is down from 2.8% in 1982, 3.4% in 1981, and 3.2% in 1980.

Translated into dollars that means business plans to spend about $8.6 billion on energy conservation next year (on capital account) versus a high of $10.9 billion in 1981.

The decline in energy spending could reflect several developments: (1) The decline in energy prices, making conservation expenditures less cost-effective now than in 1980 and 1981. The energy conservation figures dovetail with the capital spending projections by the petroleum and mining industries--both indicate a belief that energy prices will stay put at least for the next year. 2) The strides already made in efficient energy use, shifting future expenditures toward maintenance and away from costlier new projects. 3) The need at many companies to curb spending of all types, with energy conservation getting a low priortiy in a period of relatively low energy consumption.

Reductions in planned outlays on energy conservation, therefore, are understandable. The data on automation (Table VII) is less understandable. The survey finds that such expenditures are projected at 15% of total capital expenditures in 1983. By contrast, previous McGraw-Hill surveys found automation accounting for 19% or more of capital spending since 1967.

Capital spending on automation was about a fifth of total spending in 1967 to 1972; it then jumped to a quarter or more in 1973 to 1978, finally dropping back to a fifth in 1979 and 1980. The current survey's results may merely be statistical, in that every time the survey is taken the sample varies to a degree. The discrepancy between this survey and earlier ones seems quite large, however. And given that productivity in the U.S. has been stumbling in recent years, it would seem that budgeted automation spending would be on the rise.

As with energy conservation spending, the paring of automation budgets could reflect a 1983 corporate mandate to keep all outlays as low as possible. With payrolls already reduced, it may now be the turn of advanced capital equipment. Looking at it another way, productivity in 1983 will probably spurt simply because idle plant and equipment will be put back to work--fancy new robots may simply not make much of a difference in the coming year.

Once the economy gets into higher gear and the easier productivity gains have been realized, however, executives may again start putting more emphasis on automation.

Notes on the Survey

Results in this report are based on the responses of 450 firms to a survey taken in September and October. These firms account for one-third of capital spending in the country (Table VIII). For capital spending, firms supplied dollar estimates of future plant and equipment expenditures. Estimates for each year were summed by industry, and percentage changes between years were calculated. Each industry's percentage change for 1981-82, derived from the sample firms,

was then applied to the industry's total capital spending in 1981 in order to derive the industry's total estimated capital spending in 1982. The 1982-83 percentage change was applied to the estimated 1982 total industry figure to derive the industry's total estimated 1983 capital spending. The procedure was the same for 1984. Firms with extreme percent changes in spending (outliers) were removed from the sample on a year-by-year basis. The source of actual 1981 capital spending is the U.S. Department of Commerce.

Once each industry's total estimated capital spending was derived, the figures were summed to derive estimates for the various aggregate groupings--durables, nondurables, all manufacturing, all nonmanufacturing, and all business.

All data presented in this report other than the capital spending figures are based on percentage--rather than dollar--answers supplied by the sample firms. Percentage responses were weighted by size of firm within an industry to derive industry figures. Figures for the aggregates were then derived by weighting each industry by size. The weighting scheme varied according to the data being processed. For example, percentage changes in sales and product prices were weighted by sales levels while percentage changes in plant and equipment price expectations were weighted by capital spending.

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NOTE: The other durables category listed in the tables includes lumber, furniture, jewelry, toys, and transportation equipment other than autos and aerospace. Other nondurables includes apparel, tobacco, printing and publishing, and leather. The trade and services category includes retail and wholesale trade, banking, holding companies, insurance companies, hotels, laundries, and personal and business services. The communications and other category includes construction firms and transportation services other than airlines and railroads.

TABLE I

PLANS FOR CAPITAL SPENDING
(Billions of Dollars)

Industry	1982 Estimated	1983 Planned	1982-83 % Change	1984 Planned	1983-84 % Change
Iron & Steel	$ 3.20	$ 2.70	-15.5%	$ 3.24	19.9%
Nonferrous Metals	2.90	2.45	-15.5	3.01	22.7
Electrical Machinery	10.70	12.18	13.8	13.43	10.3
Machinery	13.42	13.35	-0.5	15.09	13.0
Autos, Trucks & Parts	9.23	9.35	1.3	11.50	23.0
Aerospace	5.98	5.91	-1.2	5.73	-3.1
Fabricated Metals	2.90	2.33	-19.7	2.51	7.9
Instruments	2.35	2.71	15.4	3.09	14.1
Stone, Clay & Glass	2.85	2.78	-2.4	3.19	14.8
Other Durables	6.36	5.72	-10.0	7.16	25.1
TOTAL DURABLES	59.89	59.48	-0.7	67.95	14.2
Chemicals	13.80	14.21	3.0	15.55	9.4
Paper & Pulp	6.20	6.63	7.0	6.92	4.4
Rubber & Plastics	1.85	2.12	14.4	2.26	6.4
Petroleum	27.31	25.04	-8.3	25.44	1.6
Food & Beverages	7.92	6.18	-22.0	5.91	-4.4
Textiles	1.47	1.49	1.6	1.34	-10.0
Other Nondurables	6.87	7.05	2.6	7.76	10.1
TOTAL NONDURABLES	65.42	62.72	-4.1	65.18	3.9
ALL MANUFACTURING	125.31	122.20	-2.5	133.13	8.9
Mining	16.21	14.02	-13.5	14.40	2.7
Railroads	4.02	4.30	7.0	5.67	31.8
Airlines	3.61	2.54	-29.7	2.58	1.4
Electric Utilities	31.83	31.38	-1.4	29.21	-6.9
Gas Utilities	8.45	7.39	-12.5	8.17	10.6
Communications & Other	45.26	42.09	-7.0	47.04	12.0
Trade & Services	88.84	92.93	4.6	99.16	6.7
ALL NONMANUFACTURING	198.22	194.65	-1.8	206.23	5.9
ALL BUSINESS	323.53	316.85	-2.1	339.36	7.1

NOTE: The figures in this table represent total industry spending in the U.S., and not just the spending of firms in the survey. The figures are not adjusted for inflation; thus year-to-year changes are in nominal, not real, terms. Derivation of the data is discussed in the text under "Notes on the Survey."

TABLE II

INFLATION EXPECTATIONS

INDUSTRY	---Expected % Change, 1982-83---- Plant & Equipment Prices	Product Prices
Iron & Steel	6.7%	5.7%
Nonferrous Metals	6.4	9.4
Electrical Machinery	6.5	6.8
Machinery	6.6	1.9
Autos, Trucks & Parts	7.0	6.7
Aerospace	6.2	7.4
Fabricated Metals	6.2	4.9
Instruments	8.3	3.5
Stone, Clay & Glass	7.4	5.6
Other Durables	5.9	7.9
TOTAL DURABLES	6.6	5.5
Chemicals	7.6	5.7
Paper & Pulp	6.3	5.2
Rubber	7.9	4.0
Petroleum	7.2	4.7
Food & Beverages	8.3	5.4
Textiles	5.4	5.2
Other Nondurables	7.8	6.0
TOTAL NONDURABLES	7.4	5.3
ALL MANUFACTURING	7.0	5.4
Mining	5.5	5.5
Railroads	5.8	4.9
Airlines	8.2	6.5
Electric Utilities	8.4	8.2
Gas Utilities	7.5	10.7
Communications & Other	7.2	7.0
Trade & Services	6.8	5.2
ALL NONMANUFACTURING	7.1	6.3
ALL BUSINESS	7.0	6.1

TABLE III

SALES EXPECTATIONS
(Billions of Dollars)

INDUSTRY	1982 Estimated	1983 Expected	1982-83 % Change
Iron & Steel	$ 67.0	$ 81.0	21.0%
Nonferrous Metals	58.0	66.2	14.1
Electrical Machinery	135.0	145.0	7.4
Machinery	201.0	229.9	14.4
Autos, Trucks & Parts	112.0	128.9	15.1
Aerospace	62.0	70.1	13.0
Fabricated Metals	130.0	138.8	6.8
Instruments	46.0	52.5	14.1
Stone, Clay & Glass	44.0	49.7	12.9
Other Durables	103.0	112.8	9.5
TOTAL DURABLES	958.0	1,074.9	12.2
Chemicals	171.0	191.8	12.2
Paper & Pulp	79.0	87.2	10.4
Rubber	43.0	48.5	12.9
Petroleum	202.0	218.2	8.0
Food & Beverages	267.0	298.2	11.7
Textiles	49.0	54.8	11.9
Other Nondurables	150.0	184.9	23.2
TOTAL NONDURABLES	961.0	1,083.6	12.8
ALL MANUFACTURING	1,919.0	2,158.5	12.5
Mining	NA	NA	7.4
Railroads	NA	NA	13.2
Airlines	NA	NA	11.1
Electrical Utilities	NA	NA	10.6
Gas Utilities	NA	NA	16.6
Communications & Other	NA	NA	7.8
Trade & Services	NA	NA	10.7

TABLE IV

REAL SALES EXPECTATIONS
(Billions of 1982 Dollars)

INDUSTRY	1982 Estimated	1983 Expected	1982-83 % Change
Iron & Steel	$ 67.0	$ 77.2	15.3%
Nonferrous Metals	58.0	60.7	4.6
Electrical Machinery	135.0	135.8	0.6
Machinery	201.0	226.0	12.5
Autos, Trucks & Parts	112.0	121.4	8.4
Aerospace	62.0	65.5	5.6
Fabricated Metals	130.0	132.4	1.9
Instruments	46.0	50.9	10.7
Stone, Clay & Glass	44.0	47.2	7.3
Other Durables	103.0	102.4	-0.6
TOTAL DURABLES	958.0	1,019.5	6.4
Chemicals	171.0	182.0	6.4
Paper & Pulp	79.0	83.1	5.2
Rubber	43.0	46.8	9.0
Petroleum	202.0	208.6	3.3
Food & Beverages	267.0	283.7	6.3
Textiles	49.0	52.3	6.7
Other Nondurables	150.0	175.8	17.2
TOTAL NONDURABLES	961.0	1,032.5	7.4
ALL MANUFACTURING	1,919.0	2,051.8	6.9
Mining	NA	NA	1.9
Railroads	NA	NA	8.3
Airlines	NA	NA	4.6
Electric Utilities	NA	NA	2.5
Gas Utilities	NA	NA	5.9
Communications & Other	NA	NA	0.8
Trade & Services	NA	NA	5.6

TABLE V

BUSINESS' VIEW OF THE ECONOMY IN 1983

	------Percent of Companies Reporting------				---------Weighted by Size of Company------			
INDUSTRY	Recession	Slow Growth	Normal Growth	Rapid Growth	Recession	Slow Growth	Normal Growth	Rapid Growth
Iron & Steel	0.0%	27.3%	27.3%	45.5%	0.0%	28.8%	49.3%	22.0%
Nonferrous Metals	10.0	30.0	40.0	20.0	0.0	71.4	27.2	1.4
Electrical Machinery	5.0	20.0	55.0	20.0	0.0	31.2	65.4	3.5
Machinery	6.1	36.4	27.3	30.3	0.0	62.3	29.1	8.6
Autos, Trucks & Parts	0.0	40.0	40.0	20.0	0.0	67.2	18.2	14.7
Aerospace	0.0	25.0	37.5	37.5	0.0	54.1	40.0	5.9
Fabricated Metals	0.0	56.3	25.0	18.8	0.0	30.3	12.8	56.8
Instruments	15.4	23.1	46.2	15.4	1.2	2.3	95.8	0.7
Stone, Clay & Glass	5.9	35.3	29.4	29.4	0.0	47.6	40.7	11.7
Other Durables	14.3	33.3	28.6	23.8	3.2	3.2	82.3	11.2
TOTAL DURABLES	5.1	32.3	36.6	26.0	0.4	44.9	43.5	11.2
Chemicals	7.7	23.1	65.4	3.8	0.0	31.6	67.4	1.0
Paper & Pulp	4.2	37.5	50.0	8.3	0.3	31.2	61.9	6.7
Rubber	0.0	25.0	43.8	31.3	0.0	10.6	61.5	27.9
Petroleum	0.0	38.5	23.1	38.5	0.0	30.9	29.3	39.8
Food & Beverages	12.5	37.5	31.3	18.8	0.0	54.4	34.4	11.2
Textiles	6.3	37.5	25.0	31.3	0.0	21.3	20.6	58.1
Other Nondurables	7.7	46.2	23.1	23.1	0.0	89.9	6.0	4.1
TOTAL NONDURABLES	4.5	35.4	36.4	23.7	0.0	39.2	39.6	21.2
ALL MANUFACTURING	4.8	33.9	36.5	24.8	0.2	42.0	41.5	16.3
Mining	14.3	21.4	64.3	0.0	0.0	15.5	84.5	0.0
Railroads	8.3	33.3	50.0	8.3	0.1	4.6	94.9	0.5
Airlines	16.7	0.0	50.0	33.3	0.0	0.0	70.9	29.1
Electric Utilities	0.0	21.6	64.9	13.5	0.0	17.0	64.1	18.9
Gas Utilities	0.0	41.7	41.7	16.7	0.0	51.6	11.0	37.4
Communications & Other	6.7	20.0	46.7	26.7	1.1	1.9	94.6	2.5
Trade & Services	10.0	20.0	40.0	30.0	0.1	11.0	59.5	29.5
ALL NONMANUFACTURING	7.7	21.2	47.9	23.1	0.3	11.6	69.3	18.8
ALL BUSINESS	7.0	24.6	44.9	23.6	0.3	19.6	62.0	18.1

Rapid Real Growth: 4% or higher Normal Real Growth: 2.5% to 3.9%
Slow Real Growth: 1.0% to 2.4% Recession: Less than 1%

TABLE VI

ENERGY CONSERVATION

% Capital Spending Devoted to Conservation

INDUSTRY	1982 Estimated	1983 Expected
Iron & Steel	5.6%	5.0%
Nonferrous Metals	15.2	8.4
Electrical Machinery	2.1	2.0
Machinery	2.2	1.8
Autos, Trucks & Parts	0.4	0.6
Aerospace	2.8	2.7
Fabricated Metals	8.1	9.7
Instruments	3.5	2.7
Stone, Clay & Glass	5.9	7.1
Other Durables	14.6	11.5
TOTAL DURABLES	4.7	4.0
Chemicals	7.6	6.8
Paper & Pulp	7.7	7.8
Rubber	1.9	2.0
Petroleum	1.8	2.1
Food & Beverages	4.6	6.2
Textiles	6.2	4.1
Other Nondurables	1.8	1.8
TOTAL NONDURABLES	4.1	4.2
ALL MANUFACTURING	4.4	4.1
Mining	2.6	2.7
Railroads	0.8	0.9
Airlines	2.1	4.5
Electrical Utilities	1.3	2.0
Gas Utilities	0.4	0.6
Communications & Other	2.2	1.4
Trade & Services	1.7	1.8
ALL NONMANUFACTURING	1.8	1.8
ALL BUSINESS	2.8	2.7

TABLE VII

HOW MUCH INDUSTRY IS SPENDING FOR AUTOMATION

INDUSTRY	% of Capital Spending for Automation		
	Estimated 1981	Planned 1982	Planned 1983
Iron & Steel	5.5%	16.0%	18.3%
Nonferrous Metals	9.3	10.1	10.0
Electrical Machinery	35.5	41.6	43.7
Machinery	27.6	30.9	33.1
Autos, Trucks & Parts	20.0	14.6	16.8
Aerospace	29.4	29.6	29.0
Fabricated Metals	12.9	13.4	13.0
Instruments	17.4	20.6	26.1
Stone, Clay & Glass	18.4	18.5	14.9
Other Durables	20.6	21.5	22.1
TOTAL DURABLES	23.4	25.1	26.4
Chemicals	17.1	17.6	18.4
Paper & Pulp	19.5	18.9	19.4
Rubber	14.1	14.1	16.1
Petroleum	NA	NA	NA
Food & Beverages	20.5	22.7	20.6
Textiles	23.9	21.2	26.3
Other Nondurables	19.2	22.7	22.3
TOTAL NONDURABLES	18.7	19.8	19.9
ALL MANUFACTURING	20.4	22.3	22.7
Mining	5.0	6.5	2.0
Railroads	2.5	2.6	2.6
Airlines	0.5	1.4	1.6
Communications & Other	9.9	12.2	14.1
Electric Utilities	5.4	6.0	6.2
Gas Utilities	1.4	2.0	2.1
Trade & Services	13.5	12.6	13.2
ALL NONMANUFACTURING	9.8	10.1	10.5
ALL BUSINESS	13.9	14.8	15.2

TABLE VIII

SURVEY SAMPLE SIZE

INDUSTRY	Percentage of Capital Spending Covered by Survey
Iron & Steel	78.7%
Nonferrous Metals	29.4
Electrical Machinery	36.3
Machinery	25.0
Autos, Trucks & Parts	76.6
Aerospace	29.2
Fabricated Metals	23.0
Instruments	49.9
Stone, Clay & Glass	17.0
Other Durables	13.5
TOTAL DURABLES	37.9
Chemicals	44.8
Paper & Pulp	34.0
Rubber	31.5
Petroleum	58.4
Food & Beverages	21.4
Textiles	25.6
Other Nondurables	13.7
TOTAL NONDURABLES	42.3
ALL MANUFACTURING	40.2
Mining	18.5
Railroads	43.4
Airlines	25.0
Electric Utilities	65.1
Gas Utilities	29.3
Communications & Other	42.8
Trade & Services	2.2
ALL NONMANUFACTURING	25.2
ALL BUSINESS	31.1

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Economics Department

McGraw-Hill Publications Company
1221 Avenue of the Americas
New York, New York 10020

May, 1983

36th ANNUAL McGRAW-HILL SPRING SURVEY OF BUSINESS' PLANS FOR NEW PLANTS AND EQUIPMENT, 1983-86

The economy is headed up. But capital expenditures this year will be down, according to McGraw-Hill's "36th Annual Spring Survey of Business' Plans For New Plants and Equipment, 1983-86."

The 450 companies responding to the survey said they plan to trim domestic capital outlays 1.3% in 1983. If all companies in the economy followed similar plans, total plant and equipment spending in the U.S. would fall from $316.4 billion in 1982 to $312.2 billion in 1983 (Table I). If such plans materialize, it would mark the second consecutive year of decline in business investment.

Worse yet, the survey found that firms expect capital goods prices to rise 5.6% this year (Table VIII). Combining this anticipated price increase with the planned 1.3% cut in outlays translates into a "real" drop of 6.5% in 1983 capital spending. That would follow a 5.5% real decline in 1982 and would result in the first back-to-back yearly declines in post-World War II history.

Conducted in March and April, the McGraw-Hill survey collected data from companies accounting for one-third of total capital expenditures in the U.S. (Table IX).

For 1984, these companies project a 7% hike in new plant and equipment spending, followed by increases of 8% in 1985 and 4% in 1986.

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Here are other survey highlights:

- Manufacturers plan to increase physical capacity by only about 1% in 1983 and by 2% a year from 1983 to 1986 (Table IV).

- Industry was using just 67.5% of capacity at the end of 1982, down 5.5 percentage from the year-earlier level (Table V).

- Manufacturers expect inflation-adjusted sales to rise 3.7% this year (Table VII). Product prices (a measure of the general rate of inflation) are projected to rise 4.4% (Table VIII).

In sum, the survey portrays an economy that is recovering but is still too weak to spur much in the way of capacity expansion in particular, or capital spending in general.

On the Real Side, the Survey May Be Too Gloomy

If the survey is right and real (inflation-adjusted) capital spending does fall some 6%-7% in 1983, it suggests that demand for new plant and equipment may be deteriorating at present. This statement is based on the government's estimate that business investment in the first quarter actually picked up a bit compared to the fourth quarter. If the recovery becomes more brisk in the second half of the year (as most forecasters expect), capital spending would probably gather steam by the third or fourth quarter. So for outlays for the whole year to be off some 6.5% from 1982, capital spending in the near term would have to weaken.

This situation is shown in Chart I. A hypothetical quarterly investment pattern is depicted for the rest of this year, constructed to meet the survey's projections for 1983 as a whole. Given the current state of the economy, the sharp near-term quarterly decline in real

Chart I. Capital Spending Could Take a Near-Term Dip

		--------Plant & Equipment Spending----------	
		$ Billions (SAAR)	Billions, 1972 $ (SAAR)
1982	I	327.7	157.5
	II	323.2	152.8
	III	315.6	149.4
	IV	302.8	143.2
1982	I	304 (e)	144 (e)
Hypothetical			
1983	II	300	137
	III	315	139
	IV	330	143
Annual			
1982		316.4	150.7
1983 (Based On Survey)		312.2	140.7
% Change, 1982-83		-1.3%	-6.5%

e - Estimate, based on increase in first-quarter nonresidential fixed investment in gross national product (GNP). The GNP definition of investment differs somewhat from plant and equipment spending tracked in the McGraw-Hill survey, but usually the two series move in the same direction.

SAAR - Seasonally adjusted annual rate.

(1972 dollar) spending appears far too large. Hence it is likely that the survey projection of real 1983 capital spending is too pessimistic.

The survey results on nominal (inflation included) spending, however, seem quite reasonable. Chart II shows that some near-term fall in spending coupled with a recovery in the second half could produce the survey result of a 1.3% drop in spending for the year. Alternatively, steady quarterly growth would also work.

There are two conclusions here. One is that though capital spending ticked up early this year, analysts should not be surprised if

spending takes a near-term dip before recovering later on. Two, the survey's projection of a 1.3% drop in capital outlays is right in line with current government estimates of what actually happened in the first quarter; but the survey projection of a 6.5% real drop seems too big.

The problem with the real investment figure probably lies in the projection of 5.6% inflation in plant and equipment prices. That's because the survey's inflation expectations often reflect what happened in the previous year. For example, inflation in the business investment sector was 4.3% in 1982. During the past half year, however, capital goods prices have been declining, so even if prices start rising now they would perhaps end up only a couple of percent higher than in 1982. Assuming, then, that capital goods inflation comes in at 2%-3% rather than 5.6%, the survey would imply a decline in real capital spending of 3%-4% this year rather than 6.5%.

That a decline of any sort should occur might seem at odds with an economy that is recovering. Capital spending, however, tends to lag behind a recovery by a quarter or two. And even though this pattern did not hold in 1983's first quarter, it is expected to hold for the year as a whole. Some evidence for this assumption is presented in Chart II. In essence, the chart says that though cash flow is improving, debt is being whittled down, operating rates are improving, and demand (final sales) is rising, all of these indicators are still too weak to hoist 1983 capital spending above 1982 levels.

The Industrial Profile: A Very Mixed Bag

The two dozen industries covered by the survey are split evenly between those planning increases and those planning decreases in 1983 capital outlays.

Chart II. Investment Indicators Inch Up, But They're Still Low

	1982 1Q	1982 2Q	1982 3Q	1982 4Q	1983 1Q	Annual 1981	Annual 1982
Final Sales (Billion 1972 $)	1,503	1,477	1,478	1,481	1,477	1,503	1,477
Manufacturing Operating Rate (%)	71.5	69.6	68.7	66.2	67.2	77.7	69.0
Cash Flow ($ Billions) Nonfinancial Corporations	238.5	234.5	238.0	235.0	254.3	238.7	236.5
Debt/Equity Ratio Nonfinancial Corporations	4.12	4.19	4.29	4.25	4.23	3.71	4.22
Corporate Bond Yield (%)	15.0	14.5	13.8	11.9	11.8	14.2	13.8

On the up side, a big increase is projected by rubber and plastics producers (17.4%), possibly a reflection of the surge in residential construction and in auto production. If so, these plans could quickly get scaled back if auto sales remain stuck in second gear and if high mortgage rates quell the burst in home sales.

Similarly, the stone, clay, and glass industry has been benefiting from the housing and auto recoveries; hence it may be planning to increase 1983 spending by 5.8% based on the strength of those markets. By contrast, in the McGraw-Hill capital spending surveys published last March and last November, stone, clay, and glass companies had projected declines in 1983 capital outlays. But like rubber and plastics, those firms too could cut back plans if the housing and auto sectors do not improve further.

If automotive sales don't gain speed the auto industry itself, of course, could also cut back its 8.5% projected capital spending rise. Judging from the industry's projected 1983 sales increase of 3.2% after

inflation, though, expectations for the year are modest. Hence this year's capital outlays may be anticipating 7% jumps in car and truck sales in the next few years (Table VII).

The industry planning the biggest boost in capital spending this year is instruments (22.1%). Companies in this industry may feel that as the recovery picks up, business will focus on raising productivity and cutting costs by installing scientific and engineering instruments. In fact, sales of such instruments jumped in the first quarter, and the survey shows that business will be shifting capital outlays this year toward replacement and modernization and away from expansion (Table II).

In contrast to instruments, gas utilities are projecting a 26.7% plunge in new plant and equipment expenditures this year. Several reasons could account for these plans. One is that due to the drop in oil prices gas utilities are withdrawing from alternative energy projects. Another is that with oil becoming a more attractive fuel, gas utilities may have reduced expected future growth rates and may thus have canceled or delayed some capital programs.

A third possibility is that in the face of a complex and confusing regulatory environment, gas utilities may not want to make certain future commitments right now. When the government acts on gas price decontrol (if it does) and the market reacts, gas utility capital budgets might get revised. However, the current uncertainty (will gas prices rise or fall under deregulation?) must be exerting downward pressure on gas company capital spending plans.

Elsewhere in the energy sector, the petroleum industry plans to cut capital spending 6.4% this year. And mining, which includes independent oil well drillers, projects a 19% drop in outlays. Falling

crude oil prices are obviously pushing down U.S. companies' investment in oil exploration. But lower crude prices may also reduce the need to upgrade refineries so that they can use lower grade crudes to produce high-quality refined products.

If crude oil prices fall further, petroleum and mining investment could also fall further, with major implications for overall capital expenditures. Chart III illustrates how important oil-related capital expenditures have been to total plant and equipment spending in the past decade.

Chart III. Oil Shocks Pump Up Petroleum Investment

	Petroleum as % of All Business Investment*
1973	5.6%
1974	7.4
1975	9.8
1976	10.6
1977	9.7
1978	9.9
1979	9.7
1980	11.1
1981	14.2
1982	14.4
Survey Projections	
1983	14.1
1984	13.3
1985	14.9
1986	13.8

*Petroleum includes spending on exploration and production (by independents and majors), refining, petrochemicals, marketing, transportation, and non-petroleum businesses.

Looking at future plans of the petroleum and mining (drilling) industries, a marked pickup is slated for 1985, suggesting that oil prices are expected to resume their climb by then. Not by coincidence the projection of overall business investment also takes a jump in 1985.

In 1983, large reductions in capital outlays are planned by the iron and steel and the nonferrous metals industries. Given the extremely low 43% operating rate of steel at the end of last year (Table V) and the large income losses the industry has been sustaining, the planned investment cutback is hardly surprising.

What is surprising is the strong snapback in spending planned for 1984. The 1984 figure may reflect the anticipated 9% rebound in inflation-adjusted sales this year (Table VII). Yet even that gain would leave industry shipments at historically low levels; and if the auto recovery stalls, shipments may turn out to be insufficient to spur a sharp investment recovery next year.

Nonferrous metals companies, expecting a 34.7% plunge in new plant and equipment spending this year, also project a healthy comeback next year. As with steel, however, these plans may turn out to be overly optimistic.

The Future Looks Better Than the Present

If the primary metal industries' [illegible] projections seem too upbeat, others may turn out a bit better than currently projected. Electric utilities, for example, now project a 3% drop in capital spending next year following a 4.5% increase this year. But the survey usually undershoots electric utility spending in the future, possibly because the utilities must await decisions by regulatory bodies before firming

plans up. Last spring, for example, the survey projected an 11% increase in electric utility outlays in 1982 and a 5% decline in 1983. The survey was very accurate for 1982--the actual increase last year was 12%. But last year's one-year-out projection now looks too low.

If the recovery gets snappier in 1983's second half, then some other industries--like airlines, aerospace, and paper--may also boost investment plans. Putting the possible revisions together, the survey's estimate of a 7% investment rise next year looks reasonable. That could be equivalent to a 2%-4% real increase, hardly exciting for an investment recovery but in line with a modest overall economic recovery. What's more, even a 2% real increase in plant and equipment spending would mark the biggest gain since 1979, as shown in Chart IV. At the same time, the 1984 recovery may not get investment back on its historical growth path.

Future capital spending plans, of course, are subject to much revision, depending on how the overall economy performs and how specific industries fare. But at present, given the way the survey often understates future spending, industries' longer-term plans seem fairly robust. That applies in particular to the 8% rise projected for 1985 when the petroleum sector plans to come back.

But it's not just petroleum. The capital equipment producers themselves apparently anticipate an investment recovery. Hence the machinery industry, after planning to cut outlays 5.9% in 1983, project a burst of spending through 1986, averaging hikes of some 20% a year. Other capital goods industries such as electrical machinery, autos and trucks, and instruments also plan major boosts in capital budgets in the next few years.

Chart IV. 1984 Could Be the Strongest Year in a Half-Decade

	% Change, Plant & Equipment Spending
1948-1973	4.2%*
1974	2.3
1975	-11.5
1976	2.9
1977	9.6
1979	8.2
1979	7.7
1980	0.8
1981	0.6
1982	-5.5
Survey Projection	
1983	-6.5%
1984	2%-4%

*Annual average change.

All of these plans are probably contingent on a sustained recovery beginning in 1983 and leading to a revival of capital spending. In view of the fact that spending has been in a four-year slump, the survey's future projections suggest a solid core of optimism in industry in general, and among capital goods producers in particular. However, if this recovery sputters under the strain of high interest rates, as did the 1980-81 recovery, such optimism might not again raise its head so quickly.

Notes on the Survey

Results in this report are based on the responses of about 450 firms to a survey taken in March and April. These firms account for about one-third of capital spending in the country (Table IX). For capital spending (Table 1), firms supplied dollar estimates of future plant and equipment expenditures. Estimates for each year were summed by industry, and percentage changes between years were calculated.

Each industry's percentage change for 1982-83, derived from the sample firms, was then applied to the industry's total capital spending in 1982 in order to derive the industry's total estimated capital spending in 1983. The 1983-84 percentage change was applied to the estimated 1983 total industry figure to derive the industry's total estimated 1984 capital spending. The procedure was the same for 1985 and 1986. Firms with extreme percent changes in spending (outliers) were removed from the sample on a year-by-year basis. The source of the actual 1982 capital spending is the U.S. Department of Commerce. Once each industry's total estimated capital spending was derived, the figures were summed to derive estimates for the various aggregate groupings--durables, nondurables, all manufacturing, all nonmanufacturing and all business.

All data presented in this report other than the capital spending figures are based on percentage--rather than dollar--answers supplied by the sample firms. Percentage responses were weighted by size of firm within an industry to derive industry figures. Figures for the aggregates were then derived by weighting each industry by size. The weighting scheme varied according to the data being processed. For example, percentage changes in sales and product prices were weighted by sales levels while percentage changes in plant and equipment price expectations were weighted by capital spending.

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NOTE: The other durables category listed in the tables includes lumber, furniture, jewelry, toys, and transportation equipment other than autos and aerospace. Other nondurables includes apparel, tobacco, printing and publishing, and leather. The trade and services category includes retail and wholesale trade, banking, holding companies, insurance companies, hotels, laundries, and personal and business services. The communications and other category includes construction firms and transportation services other than airlines and railroads.

TABLE I

PLANS FOR CAPITAL SPENDING
(Billions of Dollars)

INDUSTRY	1982 Actual	1983 Planned	1982-83 % Change	------Preliminary----- 1984	1985	1986
Iron & Steel	$ 3.47	$ 2.59	-25.3%	$ 3.58	$ 3.90	$ 4.32
Nonferrous Metals	2.71	1.77	-34.7	2.41	2.47	2.54
Electrical Machinery	10.62	11.41	7.4	14.39	15.49	16.89
Machinery	12.89	12.13	-5.9	14.26	16.58	19.58
Autos, Trucks & Parts	7.92	8.59	8.5	10.62	11.44	11.48
Aerospace	6.04	6.76	12.0	6.66	6.64	6.46
Fabricated Metals	2.59	2.69	3.7	2.73	2.68	2.76
Instruments	2.35	2.87	22.1	3.26	3.73	4.26
Stone, Clay & Glass	2.61	2.76	5.8	2.87	3.08	3.69
Other Durables	5.26	4.75	-9.7	5.59	6.08	6.83
TOTAL DURABLES	56.44	56.32	-0.2	66.37	72.09	78.81
Chemicals	13.27	12.13	-8.6	13.20	14.56	14.89
Paper & Pulp	5.97	6.34	6.3	5.41	7.00	5.87
Rubber & Plastics	1.71	2.01	17.4	2.49	2.54	2.47
Petroleum	26.69	25.00	-6.4	26.93	31.52	29.61
Food & Beverages	7.74	7.51	-2.9	7.81	8.02	8.39
Textiles	1.33	1.28	-3.8	1.21	1.24	1.31
Other Nondurables	6.52	7.15	9.7	8.06	8.82	7.34
TOTAL NONDURABLES	63.23	61.42	-2.9	65.11	73.70	69.88
ALL MANUFACTURING	119.68	117.74	-1.6	131.48	145.79	148.69
Mining	15.45	12.51	-19.0	12.45	15.01	16.44
Railroads	4.38	4.64	5.9	5.60	6.44	6.83
Airlines	3.93	3.49	-11.1	2.51	2.85	1.90
Electric Utilities	33.40	34.89	4.5	33.85	31.54	30.03
Gas Utilities	8.55	6.27	-26.7	7.51	8.92	9.21
Communications & Other	44.10	42.79	-3.0	46.52	50.60	55.81
Trade & Services	86.95	89.85	3.3	95.05	100.94	106.48
ALL NONMANUFACTURING	196.75	194.44	-1.2	203.49	216.30	226.70
ALL BUSINESS	316.43	312.18	-1.3	334.97	362.09	375.39

NOTE: The source for 1982 actual spending is the U.S. Dept. of Commerce. The one exception is capital spending by the instruments industry, which has been estimated from U.S. Census data and McGraw-Hill surveys. The figures in this table represent total industry spending, and not just the spending of firms in the survey. Derivation of the projected figures is discussed in the text, under "Notes on the Survey."

TABLE II

EXPANSION VERSUS MODERNIZATION
(Percent of Capital Spending)

	---Actual 1982----		--Planned 1983--		--Planned 1984-86--	
INDUSTRY	Expan.	Replace. & Modern.	Expan.	Replace. & Modern.	Expan.	Replace. & Modern.
Iron & Steel	15%	85%	14%	86%	10%	90%
Nonferrous Metals	30	70	23	77	32	68
Electrical Machinery	40	60	37	63	23	77
Machinery	42	58	33	67	37	63
Autos, Trucks & Parts	2	98	3	97	3	97
Aerospace	18	82	15	85	10	90
Fabricated Metals	29	71	20	80	24	76
Instruments	59	41	61	39	64	36
Stone, Clay & Glass	21	79	13	87	24	76
Other Durables	21	79	27	73	21	79
TOTAL DURABLES	28	72	25	75	23	77
Chemicals	38	62	39	61	38	62
Paper & Pulp	47	53	50	50	38	62
Rubber	10	90	10	90	11	89
Petroleum	34	66	33	67	77	23
Food & Beverages	52	48	46	54	44	56
Textiles	18	82	16	84	18	82
Other Nondurables	35	65	38	62	45	55
TOTAL NONDURABLES	37	63	37	63	55	45
ALL MANUFACTURING	33	67	31	69	40	60
Mining	43	57	36	64	33	67

TABLE III

BUILDINGS, MOTOR VEHICLES, AND OTHER MACHINERY & EQUIPMENT
(Percent of Capital Spending)

INDUSTRY	Actual 1982			Planned 1983			Planned 1984-86 (Average)		
	Buildings	Motor Vehicles	Machinery & Equipment	Buildings	Motor Vehicles	Machinery & Equipment	Buildings	Motor Vehicles	Machinery & Equipment
Iron & Steel	18%	2%	80%	17%	2%	81%	12%	2%	86%
Nonferrous Metals	10	2	88	9	1	90	9	2	89
Electrical Machinery	20	0	80	16	0	84	17	0	83
Machinery	21	0	79	13	0	86	12	1	87
Autos, Trucks & Parts	9	0	91	9	0	91	11	0	89
Aerospace	33	1	65	28	1	71	21	1	78
Fabricated Metals	18	2	80	17	2	81	17	2	87
Instruments	24	8	68	27	8	65	28	9	63
Stone, Clay & Glass	14	5	82	11	11	78	9	12	80
Other Durables	22	3	75	15	3	82	12	3	85
TOTAL DURABLES	20	1	79	16	2	82	14	2	83
Chemicals	15	1	84	17	1	82	15	1	84
Paper & Pulp	10	2	88	9	2	89	13	3	84
Rubber	14	0	86	10	0	90	8	0	91
Petroleum	6	1	94	7	1	92	9	1	90
Food & Beverages	12	4	84	18	7	76	16	8	76
Textiles	15	3	82	16	2	83	16	2	82
Other Nondurables	12	3	86	16	2	84	11	2	88
TOTAL NONDURABLES	10	1	89	12	2	87	12	2	86
ALL MANUFACTURING	14	1	84	14	2	85	13	2	85
Mining	3	3	94	2	4	96	3	2	95
Railroads	14	2	84	22	2	76	25	2	73
Airlines	4	1	94	3	2	95	5	3	92
Electric Utilities	5	2	92	4	2	93	7	2	90
Gas Utilities	10	1	88	10	2	88	9	2	89
Communications & Other	7	3	90	8	3	89	7	3	90
Trade & Services	38	7	55	38	6	56	38	6	56
ALL NONMANUFACTURING	20	4	75	20	4	76	21	4	75
ALL BUSINESS	18	3	78	18	3	79	18	3	79

NOTE: Sum of percent changes may not equal 100% due to rounding.

TABLE IV

CAPACITY EXPANSION
(Index, 1967=100)

INDUSTRY	1982	1983	1986	Percent Change 1981-82	Percent Change 1982-83	Percent Change 1983-86
Iron & Steel	121	121	124	0.3%	0.3%	2.3%
Nonferrous Metals	142	143	144	1.4	0.7	0.8
Electrical Machinery	258	276	318	3.2	7.0	15.2
Machinery	211	214	231	0.6	1.5	7.9
Autos, Trucks & Parts	152	155	166	0.0	2.3	6.8
Other Transportation	183	189	205	1.9	3.3	8.6
Fabricated Metals & Instruments	227	235	249	4.0	3.7	5.8
Stone, Clay & Glass	186	189	198	1.3	1.6	5.0
Miscellaneous Manufacturing	189	197	210	2.9	4.1	6.3
Chemical	238	240	262	0.2	1.0	9.0
Paper & Pulp	180	185	204	0.1	3.0	9.9
Rubber	164	165	175	1.6	0.9	5.9
Petroleum	141	135	153	-3.1	-4.4	0.9
Food & Beverages	238	246	254	0.2	3.3	3.3
Textiles	203	209	220	2.4	3.0	5.4
ALL MANUFACTURING	201	203	212	0.4	1.2	6.2
Electric & Gas Utilities	216	221	241	1.0	2.1	9.2
ALL INDUSTRY	193	196	209	0.6	1.4	7.0

NOTE: Index numbers are rounded. Percent changes are based on unrounded index numbers.

TABLE V

CAPACITY - RATES OF OPERATION
(Percent)

INDUSTRY	Yearend 1982	Yearend 1981	Point Difference 1981-1982	Preferred Rate of Operation
Iron & Steel	43.0%	71.5%	-28.5%	89.0%
Nonferrous Metals	64.6	72.8	-8.2	94.3
Electrical Machinery	69.8	79.0	-9.2	89.8
Machinery	64.4	70.7	-6.3	86.1
Autos, Trucks & Parts	57.5	60.7	-3.2	87.3
Aerospace	71.2	77.0	-5.8	93.6
Fabricated Metals	65.5	72.1	-6.6	93.6
Instruments	81.2	91.7	-10.5	97.9
Stone, Clay & Glass	63.7	76.1	-12.4	88.9
Other Durables	65.9	64.6	1.3	85.1
TOTAL DURABLES	64.7	71.3	-6.6	89.2
Chemicals	65.6	73.1	-7.5	82.4
Paper & Pulp	82.9	88.5	-5.6	94.9
Rubber	78.8	78.3	0.5	93.4
Petroleum	71.0	71.3	-0.3	92.3
Food & Beverages	74.5	77.1	-2.6	90.4
Textiles	79.4	79.8	-0.4	96.1
Other Nondurables	81.9	88.6	-6.7	94.4
TOTAL NONDURABLES	72.9	76.3	-3.4	90.5
ALL MANUFACTURING	69.1	73.9	-4.8	89.9
Mining	55.7	90.5	-34.8	91.9
Electric Utilities	63.1	70.0	-6.9	65.7
Gas Utilities	82.6	89.6	-7.0	92.7
ALL INDUSTRY	67.5	73.0	-5.5	84.3

TABLE VI

SALES EXPECTATIONS
(Billions of Dollars)

INDUSTRY	1982 Actual*	1983 Expected	1982-83 % Change	1986 Forecast	1983-86 % Change
Iron & Steel	$ 46.33	$ 52.46	13.2%	$ 77.78	48.3%
Nonferrous Metals	46.17	47.37	2.6	62.74	32.4
Electrical Machinery	138.11	148.50	7.5	203.34	36.9
Machinery	183.97	191.67	4.2	258.76	35.0
Autos, Trucks & Parts	110.67	119.15	7.7	163.99	37.6
Aerospace	64.55	73.64	14.1	99.76	35.5
Fabricated Metals	114.28	109.20	-4.4	130.76	19.7
Instruments	46.67	51.51	10.4	69.33	34.6
Stone, Clay & Glass	45.35	49.51	9.2	64.49	30.3
Other Durables	122.36	135.70	10.9	181.41	33.7
TOTAL DURABLES	918.46	978.71	6.6	1312.36	34.1
Chemicals	169.09	182.83	8.1	246.51	34.8
Paper & Pulp	78.17	87.27	11.6	115.44	32.3
Rubber	42.71	45.09	5.6	56.01	24.2
Petroleum	201.94	202.55	0.3	259.73	28.2
Food & Beverages	271.65	290.98	7.1	393.91	35.4
Textiles	49.57	53.60	8.1	73.32	36.8
Other Nondurables	154.46	186.92	21.0	251.05	34.3
TOTAL NONDURABLES	967.59	1049.24	8.4	1395.97	33.1
ALL MANUFACTURING	1886.05	2027.95	7.5	2708.33	33.6
Mining	NA	NA	-4.3	NA	25.2
Railroads	NA	NA	4.5	NA	34.9
Airlines	NA	NA	10.4	NA	31.3
Electric Utilities	NA	NA	9.4	NA	39.0
Gas Utilities	NA	NA	10.5	NA	40.3
Communications & Other	NA	NA	5.5	NA	26.2
Trade & Services	NA	NA	9.7	NA	40.0

NA - Not Available
* - U.S. Department of Commerce.

TABLE VII

REAL SALES EXPECTATIONS
(Billions of 1982 Dollars)

INDUSTRY	1982 Actual*	1983 Expected	1982-83 % Change	1986 Forecast	1983-86 % Change
Iron & Steel	$ 46.33	$ 50.36	8.7%	$ 63.45	26.0%
Nonferrrous Metals	46.17	45.89	-0.6	50.25	9.5
Electrical Machinery	138.11	141.29	2.3	166.72	18.0
Machinery	183.97	182.50	-0.8	213.34	16.9
Autos, Trucks & Parts	110.67	114.21	3.2	139.34	22.0
Aerospace	64.55	70.04	8.5	82.16	17.3
Fabricated Metals	114.28	105.48	-7.7	114.55	8.6
Instruments	46.67	49.42	5.9	60.14	21.7
Stone, Clay & Glass	45.35	47.21	4.1	53.21	12.7
Other Durables	122.36	130.19	6.4	153.75	18.1
TOTAL DURABLES	918.46	936.59	2.0	1096.91	17.1
Chemicals	169.09	174.50	3.2	200.50	14.9
Paper & Pulp	78.17	84.81	8.5	96.85	14.2
Rubber	42.71	43.56	2.0	47.22	8.4
Petroleum	201.94	206.18	2.1	229.89	11.5
Food & Beverages	271.65	280.61	3.3	324.95	15.8
Textiles	49.57	51.45	3.8	63.28	23.0
Other Nondurables	154.46	178.25	15.4	210.51	18.1
TOTAL NONDURABLES	967.59	1019.36	5.4	1173.20	15.1
ALL MANUFACTURING	1886.05	1955.95	3.7	2270.11	16.1
Mining	NA	NA	-6.3	NA	9.8
Railroads	NA	NA	1.1	NA	10.0
Airlines	NA	NA	5.4	NA	15.9
Electric Utilities	NA	NA	4.1	NA	18.7
Gas Utilities	NA	NA	-0.5	NA	19.7
Communications & Other	NA	NA	0.4	NA	4.2
Trade & Services	NA	NA	4.6	NA	19.2

* U.S. Department of Commerce.
NA - Not Available.

TABLE VIII

INFLATION EXPECTATIONS

INDUSTRY	Plant & Equipment Price Change (%) 1982-83	1983-86	Product Price Change (%) 1982-83	1983-86
Iron & Steel	5.0%	19.9%	4.6%	22.3%
Nonferrous Metals	5.8	18.6	3.2	23.0
Electrical Machinery	6.7	18.1	5.3	19.0
Machinery	3.7	17.7	5.0	18.1
Autos, Trucks & Parts	4.7	24.2	4.5	15.6
Aerospace	5.4	17.2	5.6	18.2
Fabricated Metals	3.5	13.0	3.2	11.2
Instruments	6.0	19.1	4.5	12.9
Stone, Clay & Glass	5.3	25.1	5.1	17.5
Other Durables	2.9	18.8	4.5	15.6
TOTAL DURABLES	4.9	19.1	4.6	16.9
Chemicals	5.6	20.5	5.0	19.9
Paper & Pulp	5.0	12.2	3.1	18.1
Rubber	5.3	13.4	3.6	15.8
Petroleum	5.6	19.4	-1.8	16.7
Food & Beverages	6.5	18.3	3.8	19.6
Textiles	4.4	13.2	4.3	13.8
Other Nondurables	8.0	12.7	5.6	16.2
TOTAL NONDURABLES	5.9	17.9	3.1	17.9
ALL MANUFACTURING	5.4	18.4	3.8	17.4
Mining	3.5	11.8	2.1	15.3
Railroads	4.5	21.6	3.4	24.9
Airlines	6.6	18.8	5.0	15.4
Electric Utilities	6.7	20.1	5.3	20.3
Gas Utilities	6.5	16.8	10.9	20.6
Communications & Other	5.0	15.4	5.2	22.0
Trade & Services	6.0	19.2	5.1	20.7
ALL NONMANUFACTURING	5.7	17.9	5.1	20.5
ALL BUSINESS	5.6	18.1	4.4	19.4

TABLE IX

SAMPLE SIZE IN TERMS OF CAPITAL SPENDING

INDUSTRY	% Total Capital Spending Covered
Iron & Steel	49%
Nonferrous Metals	35
Electrical Machinery	20
Machinery	45
Autos, Trucks & Parts	83
Aerospace	20
Fabricated Metals	7
Instruments	62
Stone, Clay & Glass	29
Other Durables	4
TOTAL DURABLES	37
Chemicals	54
Paper & Pulp	29
Rubber	6
Petroleum	76
Food & Beverages	23
Textiles	31
Other Nondurables	29
TOTAL NONDURABLES	53
ALL MANUFACTURING	45
Mining	8
Railroads	20
Airlines	58
Electric Utilities	69
Gas Utilities	26
Communications & Other Transportation	47
Trade & Services	4
ALL NONMANUFACTURING	27
ALL BUSINESS	34